



THE SCARLETT LETTER

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inside...

THE BIG RED APPLE CLUB

*** MASTHEAD ***

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SOFTWARE LIBRARY

The "BIG RED APPLE CLUB" has a large library of Public Domain Apple software from which members can obtain copies. This provides an inexpensive and easy way to add programs to your personal software library.

When ordering state the disk sides you want copied by number. Requests for individual programs will not be honored. All disks are DOS 3.3 unless otherwise stated. Each member furnishes blank diskettes for all requested copies. If desired, blank diskettes are available from B.R.A.C. for \$2.50. (Nebraska residents add 3 1/2% sales tax).

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There is a \$1.00 charge for all copies made from the software library. This fee will help cover the costs of maintaining and upgrading the library. Postage will be paid by B.R.A.C. for addresses within the United States.

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SOFTWARE LIBRARY NEWS

I have been receiving many questions about the software library and how it works. The most common question goes something like this, "The programs in the library look great, but how do I know what they do without more descriptions than just the program titles?" At the present time only a small handful of the disk volumes in the library have descriptions. To make our library really useful each program should have a simple description and should include documentation if needed. With over 2000 programs in the library, it is simply impossible for one person to compile this type of data, so I really need your help. Several members have already volunteered to help and this is the arrangement I have made with them. They select a general topic of interest such as games, business, graphics, Pascal, or utilities. I then send them a free disk with programs on it for them to review. They get to keep the disk and the programs in exchange for writing short 3 to 4 line descriptions about the programs. Another member has then volunteered to compile the descriptions into a new catalog. We still need more volunteers for the job and would greatly appreciate your help.

Whenever new volumes are added to the library, program descriptions will be published in either "The Scarlett Letter" or "Disk.Network". If you have programs to donate to the library, please copy them onto the back side of "Disk.Network" before returning it to BRAC.

Another common question deals with using both sides of the diskette. In the library catalog, it states that in order to use the back side of the disk a notch must be punched in the side of the disk. Well, that's not entirely true. We have modified our disk drives and do not need to notch the disk in order to copy programs onto it. To speed up the process of copying disks from the library, we no longer punch the notch in the disks. You can still RUN and LOAD programs from the backside of the disk on your computer, but you won't be able to SAVE or WRITE to the disk without punching the notch.

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THE APPLE IIe USERS GROUP CONFERENCE

by John Wrenholt

On March 4, 1983, Apple Computer, Inc. brought together representatives from over 90 user groups to the San Francisco Bay area for a three day conference on the new Apple IIe. I represented the Big Red Apple Club at the conference.

"We recognize the contribution that user groups have made to the success of our products, particularly the Apple II," said Paul Dali, co-general manager of the Personal Computers System Division. "Apple's growth can be attributed, in part, to the increase in the number of Apple user group members over the last few years. We want to continue this relationship by personally presenting the Apple IIe to our users."

While at the conference we had the opportunity to meet and talk with the Apple personnel who designed and built the Apple IIe. Included on the agenda were presentations by Peter Quinn, director of engineering for the IIe; Walt Broedner, designer of two custom VLSI (very large scale integrated) circuits that replace approximately 80 separate circuits used in the earlier Apple II models; and Rick Auricchio, developer of the software routines that drive the computer.

Other highlights of the conference included the welcome cocktail and reception which was well attended by Apple representatives; a night on the town which included an introduction to the Lisa Computer; a hands-on session with the Apple IIe; and a meeting of the International Apple Core delegates present at the conference.

Stressed throughout the conference was the fact that the Apple IIe was designed to maintain as much compatibility with the Apple II as was possible. Apple needed a product that could be mass-produced easier and that incorporated new features such as upper/lower case and 80-column display. Apple also tried to design a product that would be able to compete in the international market place and handle a multitude of different languages.

There are actually two versions of the domestic Apple IIe in circulation. The first models produced are called "Rev A" by Apple and are missing some of the features which were added in the revised motherboard called "Rev B". The Rev B version came about when it was discovered that the "inhibit" signal in some of the VLSI circuitry did not function properly. While correcting that problem, designer Walt Broedner added the capability for the IIe with an extended 80-column card to generate a new graphics mode with twice the horizontal resolution of the Apple's standard hi-res. If your Apple IIe is a Rev A board and you have the extended 80-column card, then your local dealer will replace your motherboard with the revised Rev B model.

To determine which revision you have on your IIe, check the edge of the motherboard along the back of the machine. A serial number of the board will be followed by either "-A" or "-B" which indicates which model you have.

No changes were made to the Applesoft software routines in the IIe, minor changes were made in DOS, and major changes were made in the IIe monitor ROM routines. Apple made every effort to maintain the subroutine entry points in the Autostart ROM when the Apple IIe ROM was written. The code between the

documented entry points was changed, however, and programs which jump into the middle of a subroutine may not work on the Apple IIe.

Many of the changes were necessary to support the 80-column card which is almost standard on the IIe. Self-diagnostic routines were also added to the monitor. To provide room for these new routines, Apple chose to use an alternate ROM space which overlays the I/O slot ROMS (\$C100-CFFF). By switching the SLOT CX (\$C007) softswitch, the monitor turns on this alternate ROM and the new routines are accessible by the monitor.

The space from \$C100-C2FF contains the extended monitor routines. By entering at \$C100 with the Y-register set as an index you can access one of ten different functions. The address space from \$C300-C3FF contains the code from the 80-column card. \$C400-C7FF holds the self-test diagnostics which are accessed by pressing control-solid-apple-reset. (Press both Apples down to get sound with the diagnostics). \$C800-CFFF contains the 80-column firmware.

While at the conference, we received a great many handouts, some of which we can reprint. I will be including sections of these in future issues of "The Scarlett Letter" but you may obtain the information now for the cost of copying and postage. The handouts available are:

Apple IIe Compatibility Listing	82 Pages	\$9.00
Apple IIe Hardware & Software Guidelines	4 Pages	\$1.00
Technical Overview of the Apple IIe	36 Pages	\$5.00

Some new product announcements were divulged at the conference. The Apple III SOS Reference Manual is currently being printed and will be released soon. Apple is releasing a series of training packages for beginners called Horizons. One Apple representative made the very unofficial announcement that they would soon be releasing a new disk drive on the market.

The conference was deemed a success by both the attendees and by Apple Computer, Inc. According to a rumor at the conference, "Apple had the choice of spending its money for either the conference or a 13 second TV commercial during the Super Bowl". I think they made the right choice.

*** **

NOS BASICODE

by Jack Decker

Reprinted from Northern Bytes

Published by Microcomputer Users International

It's finally here! The start of our series covering NOS BASICODE, that is. NOS BASICODE is a "universal cassette tape format that can be written and read by several makes of computers. For example, a program that has been written in Basic on a TRS-80 Model I can be saved to cassette in NOS BASICODE format, and then read directly by an APPLE II computer (with APPLESOFT in ROM). There is no need to re-type the program (although if it uses statements that are peculiar to the TRS-80, these will have to be changed or eliminated before the program will RUN on the Apple). Granted, the same thing can be accomplished using RS-232-C interfaces, MODEMS, and terminal software, but that usually requires a disk system and always requires that the serial interface hardware be present, which is usually rather expensive. In contrast, NOS BASICODE requires only a software driver program and little or no hardware!

Over 12,000 computer hobbyists in The Netherlands are making active use of

NOS BASICODE, not only to exchange programs between individual computer users, but also to receive computer programs transmitted over FM radio by the Dutch broadcasting service! Imagine a classroom setting that has TRS-80s, Apples, and PETS, all of which use cassette recorders for mass storage. A program library could be maintained in NOS BASICODE format and used on any of the machines, or for that matter, if a suitable audio line was installed it might be possible to "download" programs in NOS BASICODE format to all computers at once! This would assume that the NOS BASICODE drivers had already been loaded into the machines, of course, but that could be done once in the morning for each machine (or once for each brand of machine if the common audio link is installed), and as long as the power switch remained on the NOS BASICODE program would remain available for use.

Any problems with NOS BASICODE? The biggest is that although NOS BASICODE has been developed for use with ten computers that are popular in Europe, only three of those have achieved any measure of success in North America. Those are the TRS-80 Model I, the Apple, and the PET/CBM. Texas Holland is working on a version for the Texas Instruments 99/4A, and I am told that a version has been prepared for the Commodore VIC-20 although I do not have a copy of it yet. Also, some machines require a small amount of hardware to bypass "design features" of the cassette input circuits that make it impossible for the unmodified machines to properly read the NOS BASICODE signal. Finally, the text messages in the driver programs (and the comments in the source code listings) are in Dutch, although I have been working on translating these (with help from Pete Knooihuizen and Lou Spencer of HAMUG, the Holland Michigan Area Microcomputer Users Group).

(To be continued in the next Issue).

APPLE AUCTION

Over the past year, the Big Red Apple Club has accumulated quite an assortment of Apple-related articles which are just sitting around gathering dust. We have decided to have an auction and sell them to the highest bidder. To enter your bid, send a post card with the item number and your bid to BRAC. All bids must be received by May 20th. In case of a tie, we will use Apple's random number generator to determine the winner. Winners will be notified by mail and the items will be shipped when your payment is received.

Item No.	Description
1	A complete set of the back issues of the Apple Orchard magazine. A total of 14 issues. The single issue cost would be \$48.75.
2	An official Apple IIe pin. This is the multi-colored pin which has already become a collector's item.
3	A "Cross" ball-point ink pen with the Apple insignia on it.
4	Two Apple posters. One depicts the Apple logo on a black background and the other shows the Apple hot air balloon over a mountain lake.
5	An Apple IIe Operator's Manual.
6	Arcade Machine by Broderbund Software. Used in a review.
7	Dneiper River Line by Avalon Hill. Used in a review.
8	Saga #1, a hi-res adventure game by Adventure International.

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SOFTWARE REVIEW: MASTER TYPE

by Ron Wrenholt

"The universe is not always kind to those who type slowly". This is the first line of the manual for MasterType, the typing instruction game from by Bruce Zweig of Lightning Software. MasterType was made for those of us who type slowly or not at all.

MasterType is basically a game designed to be an aid in learning to type. And unlike many learning games this one is actually fun to play. Each game or lesson starts with your Command Ship in the middle of the screen. In the four corners of the screen are stationed the enemy combat Words. The Words are trying to destroy your Command Ship by firing missiles at it. You are in charge of defending the ship by stopping the Words attack. To successfully do this, you must type in one of the Words. Doing this will cause a lazer beam to shoot out of the Command Ship and stop the Word or its advancing missile. If you are not fast enough, the Words will destroy your ship. Sound exciting? It is!

Seventeen lessons of increasing complexity are supplied and if that is not enough, you can specially design your own lessons. The first lesson starts out with two letter words on the home row and each lesson proceeds from there with the last lessons concerning numbers and punctuation. Within each lesson, you can change the game speed, play the regular game, or the easy version, or watch a demo. You can also stop at any point to practice.

At the end of each lesson, you are given the statistics of your performance. These include a words per minute rating, a game score, number of errors, number of words, and either permission to continue to the next lesson or instructions to replay this lesson.

I find MasterType very enjoyable. Even the easy lessons can be challenging, and the later lessons with

symbols...forget it, the Words beat me every time. For someone who did not enjoy typing class too much this seems like a painless way to learn to type and would have to be great for the kids. In fact, this may be the most positive thing about MasterType. With more and more computers abounding, kids need to learn to type and the sooner the better and I will bet that few kids will argue about practicing their typing on MasterType.

*** **

SOFTWARE REVIEW: SPACE MAZE

by Ron Wrenholt

Star Maze is a space game by Sir-Tech Software with a slightly different twist. You are the pilot of a space ship much like the one from the Asteroids game. Your ship is in a maze of walls and tunnels. Your mission is to gather up the nine space jewels scattered about the maze and return them to your home base. There are sixteen different levels of mazes to fly through. To hinder your mission, the maze is full of alien ships who attack anyone in sight. The ship that you are provided with is well-equipped to fight the aliens. You are given two thrust keys, four turning keys, two firing keys, and one key to fire your three antimatter bombs which destroy everything in sight.

The ship flies quite nicely once you get the hang of it. Another hindrance to your mission is that you are given a limited fuel supply so that you must occasionally return to home base to refuel. Keeping track of where home base is located can be quite a trick. The mazes are easy to get lost in.

This game has nice graphics and good sound effects. It can be played with the keyboard, paddles, joystick, or joyport. The concept of the game is good, but after playing it for some time, I became bored with it and started to make up games of my own such as flying around trying to kill all of the aliens without worrying about picking up

the space jewels. It takes about ten or fifteen minutes for me to gather all the jewels in level one so if I was to try to play through all sixteen levels, it would become a very long game. Also, the later mazes do not seem to be much more difficult than the first.

*** **

ADDING SPICE TO PLE

by Reginald D. Gates

The Apple Spice extensions to Basic were recently reviewed in the Scarlett Letter. I purchased them from Adventure International and found them to work "as advertised" and to be well-documented. However, there is one quirk that was not mentioned in the review or the Apple Spice documentation. If you use Apple Spice in conjunction with the Program Line Editor (PLE) from Synergistic Software, you will find that when the Apple Spice routines are executed, they will disable the PLE - its edit, etc. commands will no longer work. I found the cure for this on the last page of the PLE manual. There is a reconnect routine for PLE which can be located at the address derived from the following calculation:

```
Q = (PEEK(978)-(PEEK(978)>127)*256)*256
ADDRESS = Q - 1254
```

On my 48K Apple II+ this value is always -26,868. The command CALL -26868 (which can be executed as an immediate instruction) will reconnect the PLE routines. I have found it convenient to assign the variable PLE the value -26868 right after the commands to initialize Apple Spice.

```
100 ** commands to load LE Spice
    routines, etc **
110 PLE = -26868
```

That way I can say CALL PLE in the immediate mode to reconnect the editor and I don't have to remember the address. I hope this helps others to use both of these fine products.

HOW TO GET YOUR APPLE SERVICED

by John Wrenholt

Apples are a very reliable computer but on occasion they are known to require maintenance service. If your Apple needs service, it is suggested that you take your Apple to the dealer from whom it was purchased. If you have moved, take it to an Authorized Service Center in your new location. For the location nearest you, telephone (800) 538-9696. In California, telephone (800) 662-9238.

During the initial warranty period, your dealer will repair or replace, at no charge, any Apple manufactured product. Apple also offers AppleCare, a Carry-in Service Agreement, which will keep the same protection in force for an additional year. This coverage costs less than 1% per month of the typical system price.

If your problem is not resolved successfully by your dealer, an Apple Regional Service Center will respond to your written inquiry. You can obtain their address from your dealer or from the telephone numbers listed above. The Regional Service Center will need to know the following information so be sure to include it in your letter. They will want to know the Model of your Apple system, the Serial Number, system purchase date, AppleCare Agreement number (if applicable), your dealer's name and address, the name of the person you dealt with, your name and phone number, and the nature of the problem.

Finally, if you still need assistance of Apple, send the same information as requested above to Service Manager, Apple Computer, Inc., 20525 Mariani Avenue, Cupertino, CA 95014.

Remember, for best results try to resolve the problem with your dealer first.

WHAT'S A SYNTAX ERROR?

by Jim Wrenholt

Whenever you work with an Apple it's likely you will run into SYNTAX ERRORS. For the most part SYNTAX ERRORS just mean the computer didn't understand what you typed. Sometimes it's easier to take a SYNTAX ERROR than to hit the backspace arrow and correct the typing. You are not penalized for SYNTAX ERRORS. A few common typo's that cause SYNTAX ERRORS follow:

LIS	LIAR	;OST
KUST	CATALOQUE	CATLAOG
LAOD	ASVE	etc.

All flawless typers can immediately GOTO the end of this article.

How does the Apple decide just what is acceptable and what is an error? Easy! When you type a command into the computer it is compared to a list of commands it understands. If it can't find what you have typed in its command list, it promptly decides the entry is a SYNTAX ERROR.

Where is this list in the Apple? How many commands does it really know? I thought you'd never ask. Well, the truth of the matter is that there are usually two such lists in the Apple. The first, which is a list of Basic commands is burnt into Applesoft ROM. They are rather permanent and should always be at address 53456 through 54117. The following two programs should reveal their identity and order. The programs are the same except for an added line in the second version. Try them both.

```
100 REM DISPLAY APPLESOFT KEYWORDS
105 REM VERSION NUMBER 1
110 FOR I = 53456 TO 54117
120 X = PEEK (I)
130 PRINT CHR$ (X);
140 NEXT
```

```
100 REM DISPLAY APPLESOFT KEYWORDS
105 REM VERSION NUMBER 2
110 FOR I = 53456 TO 54117
120 X = PEEK (I)
130 PRINT CHR$ (X);
140 IF X > 128 THEN PRINT
150 NEXT
```

The other list is the commands that belong to DOS, the Disk Operating System. If you have an Apple with 48k and DOS has been booted from the SYSTEM MASTER or a disk initialized from it, then these additional commands can be displayed in a similar set of programs. DOS commands are not burnt into the computer, but are brought into memory from the disk. They can also be monkeyed with. This is a common protection scheme for Basic programs, alter the DOS commands so the computer no longer understands them.

```
100 REM DISPLAY DOS COMMANDS
110 FOR I = 43140 TO 43582
120 X = PEEK (I)
130 PRINT CHR$ (X);
140 IF X > 128 THEN PRINT
150 NEXT
```

Warning. If you want to mess with these yourself please use a diskette that has been freshly initialized or at least contains no important information. Altering DOS is an easy way to crash a disk so be careful!!!

A further bit of information can be garnered from the sample programs. That is, that every command ends with a letter with its high bit set, i.e the ASCII value of the last letter is greater than 128. As the computer scans the list it uses this fact to determine the end of the word and also to count the commands. If a match is found the computer uses this count as an index into another table which tells the computer what to do or what additional information should be expected after the given keyword. If everything is not found in order an error message will still be given but probably not a SYNTAX ERROR.

Also note that if the DOS list is present, then your entry is compared to that list before it is routed to the Basic list. If the error message is displayed by Applesoft it will have a '?' in front of the error message. Integer Basic errors are preceded by an asterisk and if the error message comes from DOS there will be no punctuation in front of it.

*** **

FIX FOR EASY TEXT SCREEN DUMP

by Harry E Brawley, Jr

I read with great interest the January 1983 issue of the Scarlett Letter, especially Ron's note, "Easy Text Screen Dump". Having an immediate need for such a routine, I tried it out at once. Alas, while I did get an acceptable screen printout, the display scrolled four lines at the end of the process.

I added two lines to the program and this helped solve the screen roll problem.

```
60010 PRINT CHR$(9)"40N"  
60090 VTAB 23
```

The first line (60010) turns off the screen so that the RETURN's generated by the subroutine won't be sent to the display. The second (60090) places the cursor at the bottom of the screen to avoid a single line scroll.

The tradeoff is losing the bottom line, which in my application was acceptable. For those who find the price too great, I'd recommend the February 1983 issue of Call A.P.P.L.E. Richard Emerson's super article on Apple interrupts includes an interrupt driven screen dump that doesn't disturb the display at all. The price here is a small hardware modification to gain access the to 6502's IRQ pin.

DOS COMMANDS IN THE IMMEDIATE MODE

by John Wrenholt

For some strange reason the DOS commands "OPEN", "READ", and "WRITE" work only if they are used in a program. Entering them from the keyboard in the immediate mode will cause a "NOT DIRECT COMMAND" error to occur.

You can trick DOS into allowing such commands from the keyboard by entering from the monitor "A65E:18 60" or from Applesoft "POKE 42590,24 : POKE 42591,96".

I used this method to save an array to a text file after a fatal error had occurred in a label program I was using. The alternative would have been to lose the data I had just entered.

Be sure to re-boot the system after using this patch to ensure that DOS is properly restored.

*** **

DISK.NETWORK UPDATE

The early returns of Disk.Network are coming in and it looks like the next issue will be very good. We have only received about 5% of the mailing back at this time and already we have almost enough material to fill the next disk.

To receive the next issue, you must either return the diskette with \$2.50 payment or if you want to keep the diskette then send \$5.00. New members joining in April will receive the issue at no charge as part of their membership fee.

The next issue will be mailed promptly on April 28th. In order for your responses to be included in this issue they must be received here by April 25th.

AMPERSAND INPUT ROUTINE

by John Wrenholt

The following article presents an ampersand utility which can be used from Applesoft for inputting strings. It will allow the user to input commas and colons, but will ignore control characters. It also has a special function which will allow you to automatically convert lower case input to upper case. I used a similar routine in the Disk.Network software to allow the user to select either all upper case display or mixed upper/lower case based on the needs of her computer.

You can use the routine anywhere the Applesoft INPUT statement would be appropriate. It will work in the immediate mode and can also be used in conjunction with the READ statement to input data from text files.

For inputting one or two characters, you could use the GET statement to accomplish the same thing (see listing 1), but for larger amounts of data this will create big garbage collection problems.

```

5  REM GET A CHARACTER
10 GET A$
15 REM NOW CONVERT IT TO UPPER CASE
   IF NECESSARY
20 IF LC = 0 AND ASC(A$)>95 THEN
   A$ = CHR$(ASC(A$)-20)

```

LISTING 1

To use the ampersand routine, you must first BRUN it. This will automatically set the ampersand vectors to point to the beginning of the routine. The syntax is then:

```
& INPUT,aexpr,svar
```

As a sample you could use "& INPUT,LC,A\$". The arithmetic expression (aexpr) can be either real or integer but it must be in the range from 0 to 255. If it is equal to zero then the

routine will convert all lower case characters to upper case, otherwise it will allow them to pass through unmodified.

The string variable (svar) can be either a simple variable or an array variable. If the variable does not already exist, the routine will create a new one.

The best way to enter this routine is with an assembler program. If you don't have an assembler or if you don't have the time to type it in, both the source and object code will be on the next issue of Disk.Network. I will also put some sample programs there to show you how to use it.

As written the routine resides in the normally unused memory space from \$300-388, but it can easily be moved to a different location. To use the routine with "The Routine Machine" by Southwestern Data Systems, delete lines 1270 through 1380. You will also need to make the routine relocatable which can be done by modifying lines 1790 and 1840.

The routine uses several Applesoft ROM subroutines. If you want to learn more about how these Applesoft routines work, I would suggest that you refer to either "All About Applesoft" published by CALL A.P.P.L.E or the first issue of the "Apple Orchard". Both contain an excellent article by John Crossley called "Applesoft Internal Entry Points". This article details the important Applesoft subroutines and will be a great help to anyone writing ampersand routines.

*** ***

```

100 REM QUICK PROGRAM TO
101 REM DISPLAY THE INACCURACY
103 REM IN DECIMAL CALCULATIONS
105 REM
110 REM USE CONTROL-S TO PAUSE
115 REM
120 FOR I = 1 TO 100 STEP .1
130 PRINT I
140 NEXT

```

```

1000 *-----
1010 *      AMPER INPUT ROUTINE
1020 *      &INPUT,LC,A$
1030 *      IF LC=0 THEN CONVERT LC TO UC
1040 *
1050 *      BY JOHN WRENHOLT
1060 *-----
0006- 1070 LENGTH                      .EQ $6
0007- 1080 LC.CHK                      .EQ $7
0024- 1090 MON.CH                      .EQ $24
0028- 1100 MON.BASL                   .EQ $28
0071- 1110 SPC.PNTR                   .EQ $71,72
0083- 1120 STR.PNTR                   .EQ $83,84
0200- 1130 INPUT.BUFFER               .EQ $200
03F5- 1140 AMPER.VECTOR               .EQ $03F5
DD6C- 1150 AS.CHKSTR                  .EQ $DD6C
DEBE- 1160 AS.CHKCOM                  .EQ $DEBE
DECO- 1170 AS.SYNCHR                  .EQ $DECO
DFE3- 1180 AS.PTRGET                  .EQ $DFE3
E452- 1190 AS.GETSPA                  .EQ $E452
E5E2- 1200 AS.MOVSTR                  .EQ $E5E2
E6F8- 1210 AS.GETBYT                  .EQ $E6F8
FC10- 1220 MON.BS                     .EQ $FC10
FDOC- 1230 MON.RDKEY                  .EQ $FDOC
FDED- 1240 MON.COUT                   .EQ $FDED
1250                                .OR $300
1260 *-----
0300- A9 4C 1270 SETUP LDA #$4C      SET AMPERSAND VECTORS
0302- 8D F5 03 1280          STA AMPER.VECTOR
0305- A9 10 1290          LDA #AMPER.INPUT
0307- 8D F6 03 1300          STA AMPER.VECTOR+1
030A- A9 03 1310          LDA /AMPER.INPUT
030C- 8D F7 03 1320          STA AMPER.VECTOR+2
030F- 60 1330          RTS
1340 *-----
1350 AMPER.INPUT
0310- A9 84 1360          LDA #$84      INPUT TOKEN?
0312- 20 C0 DE 1370          JSR AS.SYNCHR NO..THEN SYNTAX ERROR
0315- 20 BE DE 1380          JSR AS.CHKCOM CHECK FOR COMMA
0318- 20 F8 E6 1390          JSR AS.GETBYT GET VALUE IN X-REG
031B- 86 07 1400          STX LC.CHK      SAVE FOR LATER
031D- 20 BE DE 1410          JSR AS.CHKCOM CHECK FOR COMMA
0320- 20 E3 DF 1420          JSR AS.PTRGET GET VARIABLE PTRS
0323- 20 6C DD 1430          JSR AS.CHKSTR MAKE SURE ITS A STRING
0326- A9 00 1440          LDA #0
0328- 85 06 1450          STA LENGTH      SET LENGTH TO ZERO
1460 *-----
1470 GET.CHAR
032A- 20 0C FD 1480          JSR MON.RDKEY READ A CHARACTER
1490 CHECK.CHAR
032D- 29 7F 1500          AND #$7F      TURN HIGH BIT OFF
032F- C9 08 1510          CMP #$08      BACKSPACE?
0331- F0 24 1520          BEQ BACK.SPACE
0333- C9 0D 1530          CMP #$0D      RETURN?
0335- F0 35 1540          BEQ STORE.STRING
0337- C9 15 1550          CMP #$15      RIGHT ARROW?

```



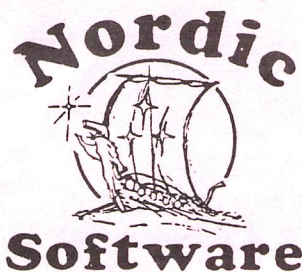
```

0339- F0 2A      1560      BEQ RIGHT.ARROW
033B- C9 20      1570      CMP #$20          CONTROL CHAR
033D- 90 EB      1580      BCC GET.CHAR    YES... THEN IGNORE
033F- A6 07      1590      LDX LC.CHK      LOWER CASE FLAG?
0341- D0 06      1600      BNE STORE.CHAR    NO..THEN SKIP CONVERT
0343- C9 60      1610      CMP #$60          LOWER CASE?
0345- 90 02      1620      BCC STORE.CHAR    NO...THEN SKIP
0347- E9 20      1630      SBC #$20          CONVERT TO UC
1640 *-----
1650 STORE.CHAR
0349- A4 06      1660      LDY LENGTH
034B- 99 00 02   1670      STA INPUT.BUFFER,Y STORE CHAR IN INPUT BUFFER
034E- 09 80      1680      ORA #$80          SET HIGH BIT ON
0350- 20 ED FD   1690      JSR MON.COUT      PRINT CHAR TO SCREEN
0353- E6 06      1700      INC LENGTH        INCREMENT LENGTH
0355- D0 D3      1710      BNE GET.CHAR      ...ALWAYS
1720 *-----
1730 BACK.SPACE
0357- A9 00      1740      LDA #0
0359- C5 06      1750      CMP LENGTH      ARE WE AT BEGINNING OF FIELD
035B- F0 CD      1760      BEQ GET.CHAR    YES...THEN IGNORE BACKSPACE
035D- C6 06      1770      DEC LENGTH      DECREMENT LENGTH
035F- 20 10 FC   1780      JSR MON.BS      MONITOR BACKSPACE
0362- 4C 2A 03   1790      JMP GET.CHAR
1800 *-----
1810 RIGHT.ARROW
0365- A4 24      1820      LDY MON.CH      GET CURSOR POSITION
0367- B1 28      1830      LDA (MON.BASL),Y  LOAD CHARACTER FROM SCREEN
0369- 4C 2D 03   1840      JMP CHECK.CHAR
1850 *-----
1860 STORE.STRING
036C- A5 06      1870      LDA LENGTH      GET LENGTH OF STRING
036E- 20 52 E4   1880      JSR AS.GETSPA  CREATE SPACE IN STRING AREA
0371- A0 00      1890      LDY #0
0373- 91 83      1900      STA (STR.PNTR),Y  STORE LENGTH IN VARIABLE POINTER
0375- A5 71      1910      LDA SPC.PNTR
0377- C8         1920      INY
0378- 91 83      1930      STA (STR.PNTR),Y  SET VARIABLE POINTER TO NEW STRING
LOCATION
037A- A5 72      1940      LDA SPC.PNTR+1
037C- C8         1950      INY
037D- 91 83      1960      STA (STR.PNTR),Y
037F- A2 00      1970      LDX #INPUT.BUFFER  GET READY TO MOVE STRING
0381- A0 02      1980      LDY /INPUT.BUFFER
0383- A5 06      1990      LDA LENGTH
0385- 20 E2 E5   2000      JSR AS.MOVSTR      MOVE STRING
0388- 60         2010      RTS              WE'RE DONE!

```

0000 ERRORS IN ASSEMBLY

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